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FALL PROGRESS REPORT
OF THE
RESEARCH PROJECT
ENTITLED
THE FLORA AND VEGETATION ECOLOGY
OF ISLE ROYALE NATIONAL PARK

SUBMITTED FALL, 1982

BY

ROBERT A. JANKE

CHIEF INVESTIGATOR

OBJECTIVES

This report will summarize the activities associated with the summer field season of the 1982-83 research year of this research project. Research objectives for this year are as follows:

A. Complete the vascular flora project. This consists of inventorying all of the vascular plant species of the park and determining their relative abundance, habitat preference, status on state and national endangered plant lists and whether or not they are native or exotic.

B. Continue monitoring the post-fire invasion of vegetation in 2 recent burns, one at Card Point, the other at McGinty's Cove.

C. Complete the tree reproduction study. This year's phase of this project involves a study of the survival of tree species reproduction after germination or vegetative sprouting.

D. Complete the study of the effects of moose and beaver on the vegetation of the park.

LOGISTICS

During most of May, 1982 we made preparations for the ensuing field season on Isle Royale. A crew of field assistants were organized and briefing sessions were held with regard to what was expected of them and what they would need for the summer. One crew member, Allison Slavik, was a graduate student, hired under project funds, to be in charge of the flora project. This would also be her thesis project. The rest of my crew consisted of four undergraduate students, one hired with project funds, two funded by the work-study program, and one, a volunteer.

The boats, and research and camping equipment were rounded up, serviced, and generally made ready for summer field use. New equipment and supplies were also purchased during this time.

I travelled to Isle Royale on May 25 via Ranger III and spent the next 3 weeks locating study sites for the summer's research, collecting and identifying plants in aquatic habitats, and planning the summer's activities.

On June 18, my assistants arrived on Isle Royale via Ranger III. We then set up a base camp at the Rock Harbor research camp. During the next week I held a training session for the research crew during which time I acquainted them with the plants that they would encounter in the various sampling projects, the sampling methods, the objectives of the study, and proper handling of the boats.

After the training session the 4 undergraduate field assistants and I traveled to the Windigo area via Voyageur II where I assisted them in initiating this year's sampling of the 2 recent burns, Card Point and McGinty's Cove. This crew then spent approximately the next 4 weeks sampling these burns. Then 2 of these assistants spent the remainder of the summer (about 5 weeks) working in beaver pond areas in order to determine the relative abundance of aquatic plants in these areas for the flora project and also to assess the effects of beaver on the vegetation of these areas. Meanwhile the other two assistants worked in the areas of some of our previously established "succession plots" on the tree species reproduction study and on assessing the effect of moose on tree species of these areas. Graduate student Slavick spent the entire summer on the flora project. She sampled and collected plants along inland lakeshores, in swamps, in bogs, along Lake Superior harbor shores, and in maple-yellow birch forests.

My time during the summer was spent locating study sites, teaching the field assisting, coordinating the activities of the various research crews, assisting each crew in starting each project and periodically checking the quality of their work and data, sampling and collecting plants on open ridge tops and in various aquatic habitats, and verifying the identification of plants collected in connection with the various projects.

METHODS

In connection with the flora project we surveyed habitats not covered by our past ecological studies. These consisted of maple-birch forests, open rocky ridge tops, and various aquatic habitats such as beaver ponds, lakeshores, bogs, and swamps. At each site the relative abundance of each species was estimated and classified as very abundant, abundant, common, scarce, or rare.

In the recent burns study at Card Point and McGinty's Cove, we performed our sampling at about the same time during the growing season as in our 4 previous samplings of these areas. Also the same procedures were used. These are described in detail in our annual report to N.P.S. of 1978.

For the tree reproduction study, we made use of sites near plots which we had previously used in our succession studies. Sampling was done in strips 2 meters wide and 32 meters long though the plot center and perpendicular to the lines along which the plots were layed out. All tree reproduction up to a height of 6 meters was sampled. For each specimen, the species, height, maximum diameter, and vigor were recorded. Dead specimens were also sampled. The effect of moose or hare browsing was also noted by recording the number of times specimens were terminally browsed and the degree of

lateral browsing (light, moderate, or severe). Stump sprouts were distinguished from seedlings.

The effects of beaver on vegetation was studied along stream courses. Aquatic vegetation along the margins of beaver ponds were compared with that along undammed portions of the stream. The vegetation was sampled along 2 meter wide strips perpendicular to the shoreline to a depth of 1.2 meters.

The effect of beaver on the forest adjacent to these streams was also studied. The species and d.b.h. of all trees were sampled along 2 meter wide strips perpendicular to shore and extending from the shoreline to a distance of 30 meters from the shore. Within these strips the species, diameter, and cutting height of all stumps of trees cut down by beavers were also recorded. For comparison, similar strips were sampled along stream segments having no beaver activity.